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ABSTRACT

Only recently has the question of why being in a good mood facilitates prosocial behavior been pursued. Two experiments investigated the role of pleasurable mood in: (1) choice bets as a measure of riskiness, a variable possibly implicated in helping behaviors, and (2) allocation of funds among categories intended to vary along a prosocial dimension. Degrees of free-floating pleasure were cued posthypnotically in three undergraduate subjects as a consequence of prior hypnotic programming. In Experiment 1 an ordered increase in risk taking accompanied progressively stronger pleasure, as predicted. Two subjects in Experiment 2 provided support for the hypothesis that higher degrees of pleasure facilitate more generous contributions to a charitable cause. The third subject responded to the task according to an interpretation irrelevant to the intended prosocial dimension, pointing out the need for checking hypothetical assumptions. The findings suggest that high degrees of free-floating pleasure are conducive to both greater risk taking and increased generosity to charitable causes. (Author/JAC)

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THE INFLUENCE OF POSTHYPNOTICALLY INDUCED DEGREES OF PLEASURE UPON RISKY AND PROSOCIAL CHOICES

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The Influence of Posthypnotically Induced Degrees of Pleasure Upon Risky and Prosocial Choices

General interest in the phenomenon relating positive mood and helping behavior was stimulated by Isen's (1970) article in which she coined the phrase "warm glow of success" to describe the effects of diffuse good mood upon helping behavior. In the two studies reported there, schoolteachers and university students were more generous in aiding others--donating money to a school fund or assisting a young woman with an armload of books--if they had just done well on an assigned task than if feedback about their performance had been negative or neutral. The diffuse warm glow was thought to consist of a more positive feeling toward others and an enhanced feeling of competence.

In the next decade various researchers demonstrated the robustness of the mood-helping relationship. In those experiments individuals were exposed to a wide variety of positive mood-inducing experiences and proved more likely to help others. Subjects found unexpected rewards (Levin & Isen, 1975) or were given free gifts (Isen, Clark, & Schwartz, 1976). Some read statements written to create a state of elation in the reader (Aderman, 1972). Others were made to feel successful (Berkowitz & Connor, 1966) or in some way happy by a nonsocial variable such as sunny weather (Cunningham, 1979). Though the documentation of the influence of these inductions techniques upon prosocial behavior is impressive, it was not until recently that the question of why being in a good mood facilitates prosocial behavior was pursued.

Isen (Isen, Shalker, Clark, & Karp, 1978) perfers a cognitive explanation of the effect of mood. According to this view, mood may alter the helper's weighting of the costs and rewards associated with helping or not helping in a particular case. Piliavin, Rodin, and Piliavin (1969) propose that a cost-

reward matrix is considered each time the potential helper has to decide whether to help or not. Good mood may cause the helper to underestimate the costs of helping (or overestimate the rewards), thereby increasing the probability of acting prosocially.

The element of riskiness would seem to constitute a part of the analysis of costs and rewards. Helping can be risky. In an emergency, the risks are danger to self and possible embarrassment. In a nonemergency situation, embarrassment is often inhibition enough. An extension of this argument is that good mood may increase the likelihood of risk taking by increasing the actor's sense of power.

There are some nonlaboratory data suggesting that intervention in a helping situation is related to risk-taking propensity. Geis, Huston, and Wright (1976) queried interveners who had sought compensation (provided through California's Good Samaritan statute) for injuries incurred while doing good deeds. These real-life interveners were predominantly risk takers, persons for whom violence and the potential for violence were familiar. Surprisingly, the traditional portrayal of a samaritan as one not caring for or expecting rewards did not apply to those helpers. They were, as a group, quick to anger and more interested in providing solo assistance than showing concern for the crime victim. There is, of course, a selective factor since the sample included only those helpers who had applied for compensation, an act possibly motivated by self-interest.

In Experiment 1 we sought to explore, in the laboratory, the relationship between degrees of pleasurable mood and risk taking. A paper-and-pencil measure of risky choices was employed (one patterned after Kogan & Wallach, 1964), the expectation being that risk taking in choosing among hypothetical gambles would increase as the degree of pleasure increased.

The second experiment deals directly with the role of pleasurable mood in prosocial choices. The reader of the mood-helping literature can recognize two major shortcomings in earlier research. First, the assumption that good mood has been indeed induced by the various techniques has mainly been based on face validity and the accumulated effects of these manipulations in various studies. Few checks on the efficacy of the induction have been attempted (Aderman, 1972; Cunningham, Steinberg, & Grev, 1980; Isen, Clark, & Schwartz, 1976) and, of those, few have proven successful (Bugental & Moore, 1979; Weyant, 1978). The second problem is reliance upon the experimenter's definition of an act as prosocial. The interview data from Geis, et al. (1976), illuminate the danger of accepting such assumptions as fact. The compensated good samaritans were more angry at the criminal than sympathetic with the victim's plight. These results suggest the importance of knowing the actor's perceptions of relevant actions. Experiment 2 incorporates a validation check by obtaining the subject's own dimensional evaluation of the various behavioral options provided. Using a money allocation task, subjects were provided with alternative categories among which a fixed sum of money was to be distributed. These categories were intended by the experimenters to vary along a dimension of pure self-interest at one extreme to ostensibly prosocial behavior at the other. Subjects were given the opportunity afterward to indicate their own perceptions of the dimension underlying the various behavioral options.

Experiment 2 was also designed to clarify the nature of the positive mood-helping relationship by employing a more powerful mood induction technique than used in past research and, for the first time, manipulating the degree of pleasure.

In both experiments, good mood was induced in varying degree by posthypnotic cues. The affective arousal training procedure, along with evidence bearing on validity is described in detail elsewhere by Blum (1979). Advantages of this method include the capability of (a) precisely controlling the onset and offset of the mood, (b) regulating the amount of pleasure by degree, and (c) insuring that the positive moods are "free floating," in other words, not connected to specific thought content.

Experiment 1

The first experiment tested the hypothesis that risk taking should increase as the degree of pleasure intensifies.

Method

Hypnotic Programming of Subjects. Three undergraduate female subjects were selected from a pool of Introductory Psychology students on the basis of their scores in hypnotic screening tasks. All initially scored at the top (11 or 12) of the Stanford Hypnotic Susceptibility Scale, Form A (Weitzenhoffer & Hilgard, 1962) and performed exceptionally well on a specially selected series of items adapted from advance Stanford scales. They were hired as regular paid subjects for three hours per week and, after several hypnotic training sessions, participated in a wide variety of experiments. As part of the training procedures, subjects learned to respond posthypnotically, with amnesia for the prior hypnotic programming, to a series of cues ranging from 0, affectively neutral, to +5 a peak of free-floating pleasure whose euphoric intensity is typically described by subjects as greater than any real life pleasurable experience. The low levels, +1 and +2, are described as "slight" and "moderate," respectively; +3 as "fairly strong"; +4 as "very strong."

Risk Taking Measure. Two sets of chance bet instruments served as the paper-and-pencil measure of risk-taking tendencies. In all, there were 24 choices to be made between two alternatives, Bets A and B. One bet was always riskier than the other. The subject wrote the letter of her preferred bet on the bet sheet itself. In any one trial, she made 12 choices (there were two sets of 12 each which were characteristically identical). The bets varied on two dimensions, expected value and probability. Expected values were either positive, zero, or negative. The probabilities for Bets A and B were either equal or unequal. An example of a choice with a positive expected value and an equal probability is:

Bet A -- 80% chance to win $2, 20% chance to win $7

Best B -- 80% chance to win $2.50, 20% chance to win $5.

The risky choice here is Bet A. Frequency of selection of the risky choice was the score upon which subsequent analyses were based.

Procedure. At the conclusion of the hypnotic affective arousal training, and just prior to the chance bets task, the subject was told under hypnosis that each of the subsequent trials would seem unfamiliar to her. This amnesia instruction allowed the experimenters to repeatedly use the same two 12-item sets of bet choices without any conscious recognition of items by the subjects. When awake, the subject was told that her task was simply to indicate her preferences for the various alternatives. The posthypnotic cue for the scheduled affective state was given and responded to automatically, remaining in effect during the completion of one set of 12 choices. Order of presentation of the affect cues was randomly determined. This procedure was repeated until the complete set of 24 choices had been done twice under each of the six cues.

Results

The first analysis compared the mean number of risky choices in a single trial of 12 bets made by the three subjects as the affective state increased from neutral (0) to the highest degree of pleasure (+5). The values in the final column of Table 1 differ significantly and show a linear trend ($t(5) = 9.90$, $p < .0001$). The summary data, then, support the hypothesis that people prefer risk, or are at least less apprehensive about it, as the degree of experienced pleasure increases. The first three columns of Table 1 give the mean risky choices for each subject.

Insert Table 1 about here

Subject K most dramatically increased her risk taking as pleasure increased. In +1 she made only one risky choice out of 48, whereas in +5 she chose the riskier alternative in 47 of the 48 trials. Her mean proportion of risk taking over all trials was 37%. Subject V, on the other hand, displayed a general risk-taking disposition. She chose the riskier alternative 71% of the time. Her preference for risk dipped slightly at +1, relative to 0, and steadily climbed to 83% at +5. Subject M's proportions of risky choices increased as a function of increasing pleasure more than those of V but less than those of K. Her mean overall risk taking was 58%, a proportion intermediate to the other two. Her largest increase occurred when pleasure changed from +1 to +2. Then the proportion rose at +4 to 79% and stayed there.

Summarizing the data of all three subjects from Table 1, we note that all subjects exhibit an ordered increase in risk taking as pleasure goes up from +1 to +5. A minor exception is the tie between +4 and +5 for subject M. Sizeable

increases over the neutral level do not begin to occur until +4 for V, +3 for K, and +2 for M. The smallest amount of pleasure (+1) does not facilitate risk taking. In fact, those scores are somewhat lower than those in the neutral condition (0).

Discussion

In waking comments after the experiment, while posthypnotic amnesia for the hypnotic programming was still in effect, all subjects reported that they had experienced varying degrees of pleasurable mood. Subsequent postexperimental inquiry under hypnosis shed some light on subject V's performance in comparison with M's and K's. In that inquiry, she claimed familiarity with and fondness for betting. She went to the racetrack and played poker. In short, she was an experienced risk taker. She indicated that, because of her experience, she had tried to sustain a rational analysis of the probabilities in lieu of more impulsive decisions based on mood fluctuations. In other words, she deliberately sought to neutralize the effect of mood and succeeded to a limited extent.

Subject M reported that she found it easier to choose between Bets A and B in +4 and +5 because she ignored the odds. When she felt very happy, she thought she should take the chance to win the most, regardless of the risk involved. During K's inquiry she recalled a preference for safe choices in 0, +1, and +2. When she experienced the +4 level of pleasure, she thought she could win pretty easily. At +5 she felt she could win almost all of them. Forty-seven of her 48 choices in this condition were risky. When she was so happy, she believed her losses would be minimized. Her experience was exactly as predicted by our hypothesis. That is, good mood led her to underestimate costs.

In regard to the possible operation of demand characteristics in the experimental situation (Wispe, Kiecolt, & Long, 1977), it would have been extremely difficult, given the very quick choices, for subjects to keep track of their responses in order to produce systematically ordered results from +1 to +5. Also, the fact that, for all subjects, at least one or more of the lower levels of pleasure did not yield riskier choices when compared to the neutral condition, does not support an inference of deliberate manipulation of responses.

Experiment 2

Experiment 2 incorporated the posthypnotically cued degrees of free-floating pleasure with the same three subjects in a study of prosocial choices. A situation was created in which subjects had to distribute a portion of their hypothetical income among five categories. The dimension along which the categories were ordered was intended to range from strong self-interest to strong prosocial. The hypothesis posited that individuals would give relatively more money to the prosocial, helping categories of activities as degree of experienced pleasure increased.

Method

Hypnotic Programming of Subjects. Each subject was instructed under hypnosis that the hypothetical situation she would be asked to imagine when awake would seem very real, including the play money used in the situation. She was to imagine herself several years in the future, financially secure, with an end-of-year surplus income of $5000. Also, she was instructed that amnesia would follow each trial, so that every trial would be experienced consciously as if it were novel. A routine amnesia instruction for all prior hypnotic programming was then given. Out of hypnosis, the scenario was explained in detail, and the categories were introduced.

The categories. The order of categories from most self-concerned to most prosocial, as conceived by the experimenters, follows:

1. Possible new car purchase. The subject didn't need a new car but could afford one. Only a down payment that fell within the $1000-$3000 range was required.

2. Savings account deposit. Accrued interest on whatever amount deposited was 6%.

3. Alumni fund contributions. Any amount contributed would fund her class reunion, newsletter, and sponsor performances on campus which she might be able to attend.

4. Political campaign contribution. The campaign dealt with issues (not candidates) about which she had some conviction or concern.

5. United Way donation. The gift to deserving charities was to be anonymous.

Cards describing each of these categories were affixed to small baskets which were placed, in scrambled order, in front of the subject. The smallest money bill, and therefore, the smallest possible contribution, was $20. Other denominations were $50, $100, and $500.

Procedure. After the scenario was presented and the baskets were displayed and described, the subject was given the stipulation that all the money had to be distributed during the untimed trial. She was completely free to allocate as she wished. Then the posthypnotic cue was given to place her either at '0,' the neutral condition, or one of the five degrees of free-floating pleasure. The schedule of mood cues was randomly determined. Also, each block of six cued trials was preceded and followed by a no-mood-cue-baseline trial.

When the subject finished distributing the money, she eliminated the trial from consciousness and rested with eyes closed while the experimenters recorded the amounts allocated to each category. Then the cue for the next block of trials was given. The experiment consisted of three blocks of six trials plus baseline measures. Immediately after the final baseline trial, the subject was asked in the waking state to describe the underlying dimension that related the five categories to which she had allocated her money.

Results

Since the categories presumably varied in salience for each subject, and the experimental intent was to ascertain relative shifts in preference across the degrees of pleasure, the data were transformed in order to permit direct comparisons among individuals. The transformation was accomplished by first calculating the mean of the sum of money allocated by a given subject to a category over the three trials and then computing *z* scores for that subject's allocations to the categories across experimental conditions. These data are summarized in Table 2.

Insert Table 2 about here

In order to interpret the data of Table 2, it is first necessary to examine each subject's own dimensional evaluation of the various categories (obtained at the conclusion of the experiment) for possible deviations from the experimenters' intended prosocial scale. From her spontaneous comments, V's perceptions did conform to the original scale, with Car and Savings grouped closely at one extreme and United Way at the other. Subject K departed from the intended prosocial dimension by viewing the categories as falling along a

scale of "importance to give money to." She placed Savings and United Way at the most important extreme, and Alumni Fund and Political Contribution at the other. Subject M, using a radically different set, saw the categories as falling along a dimension of frivolousness and made her allocations accordingly. She perceived the Car at one extreme, as "most frivolous" and Savings at the other extreme, as "least frivolous." Because of these differences in subjective interpretation, the data are best evaluated descriptively by subject.

Looking at V's data first, since she was the one whose perceptions conformed to the prosocial dimension, the hypothesis can best be tested by noting the effects of degrees of pleasure upon Car and Savings at one pole and upon United Way at the other (z scores set off in boxes). For both self-interest categories there is a break in the distribution between +2 and +3. For the baseline and lower degrees of pleasure, money is overallocated to self-interest categories; at the higher degrees it is underallocated in these categories. Of the latter, +4 shows the most marked underallocation. At the prosocial end the United Way category shows the converse: underallocations up to +2 and overallocations at the higher degrees, again most marked at +4. These results generally support the hypothesis. Of the remaining categories, Political resembles United Way closely, whereas Alumni does not reveal a consistent trend.

In K's case the most relevant categories to consider are her two "most important" ones, Savings and United Way (see boxes in Table 2). With respect to Savings, the direction of her contributions resembles V's. Very high pleasure (+4 and +5 in this case) is accompanied by underallocation; baseline and 0 through +3 by overallocation. For United Way again the opposite is

true: overallocations at +4 and +5, underallocations at the rest. Subject K's data for Car, rated by her as very close to United Way in importance, are in fact similar to United Way.

Subject M, whose subjective dimension did not conform to the prosocial one intended, considered Savings to be "least frivolous" and Car "most frivolous." As pleasure increased, she gave progressively less money to Savings and progressively more to Car--a not too surprising result in light of her set (see boxed rows in Table 2) and data from the previous experiment on risk taking. Her other categories do not reveal consistent trends.

Discussion

On the methodological side, postexperimental hypnotic inquiry again yielded confirmation from the subjects that the pleasure cues had been carried out in accordance with the prior hypnotic programming. The operation of demand characteristics in the allocation task itself seems unlikely, as in Experiment 1, especially since two of the subjects did not even adopt the experimenters' intended set in responding to the categories. The latter highlights the importance of including postexperimental checks on assumptions made by experimenters with respect to the intended prosocial nature of a task.

Concerning the hypothesis that a more positive mood facilitates prosocial choices, the weight of evidence is generally supportive. Subject V, beginning with the +3 degree of pleasure, characterized as "fairly strong" in the training, behaved more generously toward the most prosocial category and less generously toward the least. Subject K performed in a similar manner to V beginning at +4. By inference contrasting allocations in the two "most important" categories--Savings and United Way--point to the underlying operation of the prosocial dimension in common with V. Another aspect of K's performance suggests

a shared interpretation with M. In only +4 and +5 K overallocated money to Car (not as "important") corresponding to M's overallocations to Car (the most "frivolous" for her) at those levels. The latter's data cannot be invoked as a test of the hypothesis inasmuch as she apparently construed the categories along a dimension irrelevant for purposes of the experiment. Her task behavior did, of course, conform to post hoc expectations of the influence of increasing pleasure upon frivolous choices.

In conclusion, Experiments 1 and 2 suggest that high degrees of free-floating pleasure <u>are</u> conducive to both greater risk taking, a plausible component of some instances of prosocial action, and increased generosity to charitable causes. Affective <u>intensity</u> has proven to be a critical variable in determining the choice behavior of subjects in these experiments. The methodological contribution of manipulating pleasure in degree, through prior hypnotic programming, is again demonstrated.

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Table 1

Mean Number[a] of Risky Choices At Each Degree of Pleasure

Mood Cue	Individuals			Combined Means for All Subjects
	K	M	V	
0	0.17	1.67	2.83	1.56
+ 1	0.08	0.92	2.25	1.08
+ 2	0.33	2.42	2.33	1.69
+ 3	1.17	2.50	2.92	2.19
+ 4	3.25	3.17	3.25	3.22
+ 5	3.92	3.17	3.33	3.47

[a] 4 00 possible (4 trials of 12 choices each)

Table 2
Z Scores of Money Allocation to
Categories According to Mood

Category		Baseline	0	+1	+2	+3	+4	+5
Savings	K	.28	.17	.45	.26	.18	-.62	-.71
	M	.91	1.51	1.05	.09	-.41	-.86	-1.09
	V	1.52	.58	.20	.52	-.58	-1.37	-.90
Car	K	-.28	-.06	-.49	-.14	-.29	.73	.54
	M	-.94	-.94	-.94	-.01	.36	.91	1.55
	V	.05	.57	1.42	.76	-1.12	-1.31	-.37
Political	K	-.44	-.80	-.35	-.71	.18	0	2.12
	M	.98	-1.22	.28	.49	.40	.68	1.96
	V	-.93	-.07	-.80	-1.16	1.13	1.23	.60
Alumni	K	-.28	-.53	-.63	-.82	.16	-.04	2.13
	M	.57	-1.89	-.39	.25	.13	1.37	-.04
	V	-.65	-.65	2.03	-.65	.19	-.65	.40
United Way	K	-.60	-.67	-.77	-.84	-.10	.49	1.50
	M	-.47	-.99	.85	.13	1.45	-.69	-1.22
	V	-.88	-1.03	-.72	-.27	.60	1.67	.63